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CASE REPORT

PRIMARY INOCULATION TUBERCULOSIS FOLLOWING PRICKING INJURY PRESENTING AS COLD ABSCESS : REPORT OF 4 CASES.

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ABSTRACT

Tuberculosis is considered as ubiquitous disease as it involves any organ, but involvement of skin is very rare; less than 1% of all tuberculosis today manifests as primary inoculation tuberculosis. In most cases, involvement is secondary and is caused by extension from underlying contiguous tuberculous structure. Primary inoculation tuberculosis of skin resulting from direct inoculation by pricking injury is a rare entity, the most notable example of primary inoculation tuberculos is the prosector's wart acquired by pathologists and their assistants from inoculation by tuberculous cadaver. We are reporting 4 cases of Primary inoculation tuberculosis following pricking injury without any evidence of pulmonary or skeletal tuberculosis in apparently healthy individual with no past history of contact or previous antituberculous therapy, presented with painless, fluctuating, non warm masses of variable sizes 6-24 weeks after pricking injuries. Bacteriologically acid fast bacilli in Ziehl-Neelsen stain and histopathologically granulomata with epithelioid cells and variable areas of caseation necrosis were observed. All improved with surgery followed by standard antitubercular medications and no evidence of recurrence or other organ involvement was observed at 1-year follow-up visit.

Key words: Primary inoculation tuberculosis, tuberculosis, Mycobacterium.

INTRODUCTION

Primary inoculation tuberculosis typically follows direct introduction of mycobacterium into skin or mucosa of a person by trauma or injury without immunity detected against the organism and was first documented in 1826; when Laennec reported his own Prosector's wart[1]. Tuberculosis involvement of skin is very rare; less than 1% of all tuberculosis today manifests as primary inoculation tuberculosis where extrapulmonary constitutes about 10% [2,3]. Furthermore, nowadays it is rare to find in immunocompetent rather than non-immunocompetent patients. It can present in various forms depending on the mechanism of propagation, bacterial load implicated, virulence of bacilli and the host's immune status[4]. Clinical findings vary; localizes papules, verrucous plaques, suppurative nodules, cfronic ulcer, or other lesions may be seen. Detailed history and physical examination, Routine blood test, Ziehl-Neelsen stain for identification of acid-fast bacilli (AFB), Fine needle aspiration cytology (FNAC), Culture (Lowenstein-Jensen medium) of pus and histopathological examination of abscess wall were performed for all patients to make diagnosis. To rule out pulmonary tuberculosis, chest X-ray was taken for all patients. Primary inoculation tuberculosis has been reported following tattoo, scalpel injury, accidental needle stick injury, acupuncture, intralesional steroid injection, after BCG (Bacillus Calmette-Guerin) vaccination and following vehicular accident[5]. Here, we are reporting 4 cases of primary inoculation tuberculosis resulting from pricking injury by stick broom (2), intramuscular injection (1) and nail (1) presenting as cold abscess.

CASE REPORT

The study series included four male patients ranging in age from 14 to 48 years, presented between August 2009 to January 2013 with history of pricking injury by stick broom (n=2), intramuscular pain killer injection (n=1) and nail (n=1) for about 24, 24, 4, 6 weeks before respectively. All patients presented with a painless, gradually increasing swelling over his left scapular region (two cases), left deltoid, left sole for the last 20, 23, 4, 2 weeks respectively. All patients had no clinical symptoms suggestive of tuberculosis, no past history of tuberculosis and none had been contact with any patients of tuberculosis. On physical examination, each patient had a soft, cystic, non tender, non warm, non reducible, fluctuating mass (4 cm x 5 cm, 5 cm x 7 cm, 3 cm x 3 cm, 2 cm x 3 cm respectively) in described area. All had no signs of local inflammation. There were no associated lymphadenopathy and systemic examinations were normal. In routine blood tests, all patients revealed haematologically normal except raised ESR, ranging from 14 - 110 mm in the 1st hour. Chest X-Rays were negative for all cases. All had strongly positive Tuberculin Test. Fine needle aspiration cytology revealed abscess. The patients were diagnosed as cold abscess.

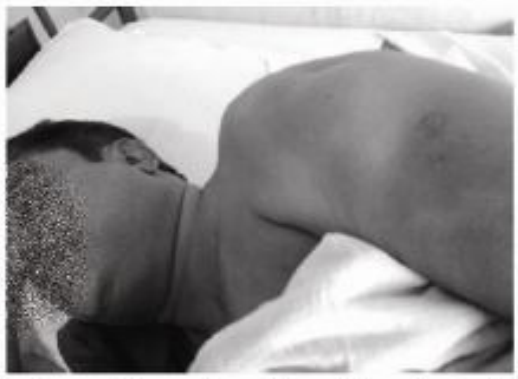

Fig 1 : Primary inoculation tuberculosis after intramuscular injection.

Incision and drainage were done in all cases. The pus was collected in a sterile container immediately and sent for bacteriological examination. The abscess wall was sent for histopathological examination. The wounds were completely healed after regular dressing. Bacteriological examination of pus revealed acid fast bacilli in Ziehl-Neelsen stain. There was no growth in Lowenstein-Jensen medium. Histopathologically all showed granulomata with epithelioid cells and variable areas of caseation necrosis.

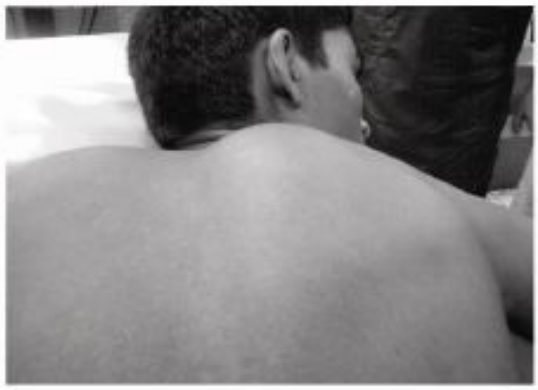

Fig 2 : Tuberculosis following pricking injury by stick broom.

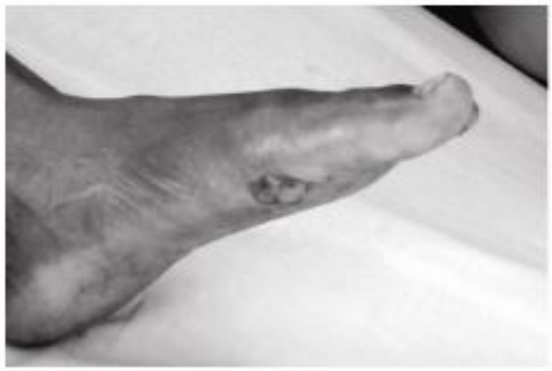

Fig 3 : Tuberculosis following pricking injury by nail.

All tuberculous wounds were responded well with standard anti-tubercular drugs and had no residual complication. The treatment was administered in collaboration with TB Clinics. All patients were under regular follow-up and no evidence of recurrence or other organ involvement was observed at 1-year follow-up visit.

DISCUSSION

Primary inoculation tuberculosis typically follows direct introduction of mycobacterium into skin or mucosa of a person by trauma or injury without immunity detected against the organism. Tuberculosis involvement of skin is very rare; less than 1% of all tuberculosis today manifests as primary inoculation tuberculosis where extrapulmonary constitutes about 10%. The clinical manifestation is so variable that a high index of suspicion is required for its diagnosis. Tuberculosis remains a major global health problem ranks as the second leading cause of death. The latest estimates 8.6 million new cases in 2012 and 1.3 million died from tuberculosis[6]. Cutaneous tuberculosis can be due to exogenous or endogenous infection. Primary inoculation tuberculosis is an exogenous infection, which is caused by the direct inoculation of mycobacteria into the skin of a person who has no natural or artificially acquired immunity to the organism. It usually occurs through injury to the skin by unnoticed minor trauma in an exposed area as mycobacteria cannot penetrate the intact skin[7]. Our 4 cases developed after accidental pricking injury by stick broom (two cases), nail and following intramuscular injection. In these cases, the exogenous source of infection was probably the stick broom, nail and needle, because every site receiving injury developed similar skin lesions. The lesions were found to be compatible with primary inoculation tuberculosis by clinical, cytopathological finding of acid fast bacilli and absence of other lesions on chest X-ray.

In general, inoculation tuberculosis skin lesions appear 2-4 weeks after inoculation and present as an erythematous nonpainful papule or nodule8. Lesions may resolve spontaneously or progress into abscess formation or lupus vulgaris like picture. Histopathology is an acute non-specific inflammatory reaction in both skin and lymph nodes, and the mycobacteria are easily detected by acid-fast bacilli stain. Through lymphatic drainage, painless regional lymphadenopathy develops 3 to 8 weeks after the infection, and a tuberculoid appearance and caseation necrosis may be seen in histopathology. The multibacillary condition becomes paucibacillary as host immunity develops, and the tuberculin skin test converts to positive[7].

Primary inoculation tuberculosis has been reported on a tattoo[8], following vehicular accident[9], scalpel injury[10, 11], accidental needle stick injury[12], accupunture4 and intralesional steroid injection[13].

Primary cold abscess of keloid on sternum[14], anterior abdominal wall[4,15], anterior chest wall[16], has also been reported in various journals.

In our case reports, the source of infection may be contaminated stick broom (which usually used by the villagers to clean the premises of their houses), the needle of the syringe and nail.

In general, the treatment of primary inoculation tuberculosis should not differ from tuberculosis of other organs. Multiple antituberculous medications (including isoniazid and rifampicin) should be used in combination for a period of no less than 6 months.

CONCLUSION

In view of varied manifestations of cutaneous tuberculosis, high index of suspicion is required in order to quickly and effectively diagnose and treat substantially morbid skin conditions.

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